What's Going On In Miller's Bay

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Part I: Overview of Business

The State Hygienic Laboratory was founded in 1904 to help with disease detection and environmental monitoring of the states water supplies. It plays an important role for public health in all 99 counties in the state of Iowa. The State Hygienic Lab has three different locations in Iowa. In 2008, a collaborative agreement between the State Hygienic Lab and the Iowa Lakeside Lab was made to start a waster quality monitoring and testing lab in house on the Lakeside Lab campus. The Iowa Lakeside Lab is a 147-acre campus located on West Okoboji Lake in Little Miller's Bay that was founded in 1909 as a filed station. The Lakeside Lab is owned by the state of Iowa and id operated by the Board of Regents. In the 1930s the initial buildings were constructed, which consisted of 5 stone laboratories, 4 student cabins, and a bathhouse. More buildings were added in the 1960s and 1970s and in 1998 the Waitt Building was constructed and now houses the water quality lab.

Part II: Job Specifics

The Iowa Lakeside Lab, which is apart of the State Hygienic Lab is a water quality lab. The staff tests and analyzes water from a variety of different areas such as, lakes, rivers, watersheds, and wastewater treatment facilities. The water that comes to the lab is tested for various things including, total phosphorus, ortho-phosphate, nitrate, turbidity, dissolved oxygen and many other things.

Part III: Introduce the Problem

Miller's Bay is a hotbed for boating, tourism, swimming and recreation. Local people in the area as well as tourist have started noticing that Little Miller's Bay and Miller's Bay as a whole has started looking a little unusual in comparison to previous years. Since West Okoboji Lake is a glacial lake, it is known for its crisp, clean water, but recently more and more "stuff" has started to appear in the water. This concern has lead the staff on Lakeside's campus to start testing the water and water sources. So far they have discovered reduced clarity, fluctuating, dissolved oxygen levels, increased amounts of total phosphorus, ortho-phosphates, and nitrate levels.

Part IV: Background

Students will need to understand how watersheds, rivers, and lakes are interconnected and how humans and pollutants can impact aquatic ecosystems

- Watershed understanding needs to occur to understand how water flows into the bay.
- Students will need to learn and comprehend Point and non-point source pollution
- -Students needs to become familiar with the Lakeside campus and the other surrounding lakeshore. This can be accomplished through a hike of the property of lakeside
- Students can then take samples and test each of the watersheds to see where the problem is coming from

Part V: Business Solution

The Lakeside Lab staff would start by collecting samples from each of the watershed sources and complete field tests in each of the locations to gain initial analysis. The collected samples would then be taken back to the lab for further testing to determine what is wrong with the water and which of the watersheds are contributing to the changes in the bay.
Once the "problem" bay has been identified, the Lakeside Lab staff would work with surrounding lab owners to try and fix the problem.

Part VI: Student Solutions

Students would be able to help come up with solutions to help filter out the water before entering the lake
Students could develop materials to help educate the public about the importance of keeping the lake clean and healthy
Students could also create informational materials to give to the surrounding land owners about safe farming practices and how their property drains into the lake